CLAIMS

What is claimed is:

1. A genetically recombinant plant comprising a plant transformed to contain and express in recoverable quantities an exogenous gene sequence or fragment thereof which encodes a cellulose-degrading gene product and wherein the gene product is classified within an enzyme classification selected from the group consisting of EC 3.2.1.4, EC 3.2.1.6, EC 3.2.1.21, EC 3.2.1.91, and combinations thereof.

2. The genetically recombinant plant of Claim 1, wherein the gene product is expressed constitutively.

3. The genetically recombinant plant of Claim 1, wherein the gene product is expressed stage-specifically.

4. The genetically recombinant plant of Claim 1, wherein the gene product is expressed tissue-specifically.

5. The genetically recombinant plant of Claim 4, wherein the gene product is expressed in a plant tissue selected from the group consisting of seeds, fruit, stems, leaves, and tubers.

6. The genetically recombinant plant of Claim 4, wherein the plant contains at least two exogenous genes and wherein their respective gene products are expressed independently of one another.

7. The genetically recombinant plant of Claim 1, wherein the gene product is expressed in a targeted sub-cellular compartment.

8. The genetically recombinant plant of Claim 7, wherein the gene product is expressed in a sub-cellular compartment selected from the group consisting of: plastid, cytosol, endoplasmic reticulum, mitochondrion, inclusion body, and vacuole.

9. The genetically recombinant plant of Claim 7, wherein the plant contains at least two exogenous genes and wherein their respective gene products are expressed independently of one another.

10. The genetically recombinant plant of Claim 1, wherein the gene product is expressed extra-cellularly.

11. The genetically recombinant plant of Claim 1, wherein the plant is dicotyledonous.

12. The genetically recombinant plant of Claim 1, wherein the plant is monocotyledonous.

13. The genetically recombinant plant of Claim 1, wherein the plant expresses a cellulose-degrading gene product classified within an enzyme classification selected from the group consisting of EC 3.2.1.4 and EC 3.2.1.91.

14. The genetically recombinant plant of Claim 13, wherein the plant expresses *A. cellulolyticus* endoglucanase E1 or *T. reesei*. CBH I.

15. The genetically recombinant plant of Claim 1, which is alfalfa or tobacco.

16. The genetically recombinant plant of Claim 15, which is stably transformed to contain a gene sequence which encodes a cellulase-degrading enzyme selected from the group consisting of *T. fusca* cellulase E2, *T. fusca* cellulase E3, *T.*

SUB A1

ressei CBH I, *A. cellulolyticus* endoglucanase E1, and combinations thereof.

SUB B2

17. The genetically recombinat plant of Claim 16, which is alfalfa.

18. The genetically recombinant plant of Claim 16, which is tobacco.

19. The genetically recombinant plant of Claim 16, which is alfalfa transformed to contain and express a gene sequence selected from the group consisting of SEQ. ID. NOS: 8 and 9.

20. The genetically recombinant plant of Claim 16, which is tobacco transformed to contain and express a gene sequence selected from the group consisting of SEQ. ID. NOS: 8 and 9.

SUB A2

21. A method for producing cellulose-degrading enzymes comprising cultivating a genetically recombinant plant according to Claim 1.

22. The method of Claim 21, further comprising concentrating the cellulose-degrading enzymes.

23. A method for producing cellulose-degrading enzymes comprising cultivating a genetically recombinant plant according to Claim 13.

24. The method of Claim 23, further comprising concentrating the cellulose-degrading enzymes.

25. A method of ensilement comprising ensiling a plant according to Claim 1, whereby cellulose-degrading enzymes produced by the plant increase nutritional value of silage.

26. A method of ensilement comprising ensiling a plant according to Claim 13, whereby cellulose-degrading enzymes produced by the plant increase nutritional value of silage.